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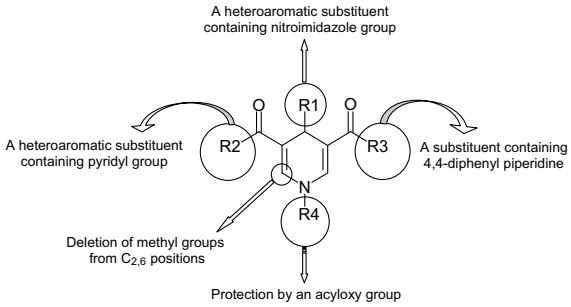
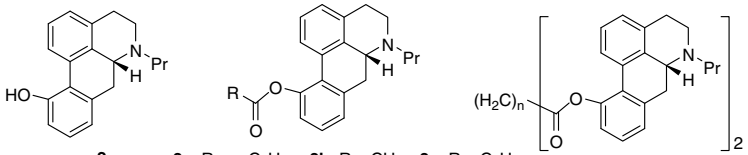
Contents

PERSPECTIVE

1,4-Dihydropyridines (DHPs) are a class of MDR reversals. The various investigations on reversing effect of DHPs shows that they can be a potential effective class on both typical and atypical MDR.

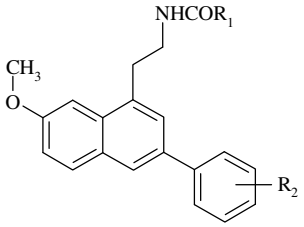


ARTICLES

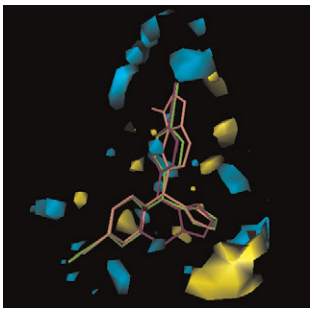


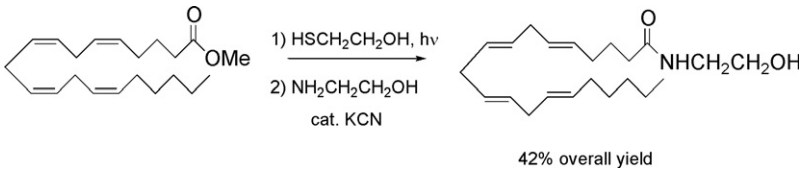
2 **3a**, R = n-C_4H_9 **3b**, R = CH_3 **3c**, R = C_2H_5 **3d**, n-C_3H_7 **3e**, n-C_5H_{11} **3f**, n-C_6H_{13} **3g**, CBZ-NH-CH_2 **9**, n = 2; **10**, n = 3

A small series of *N*-propylnoraporphin-11-*O*-yl carboxylic esters with variant ester lengths were synthesized. Although the diesters **9** and **10** were inactive for the D_2 receptor, all of the aporphine monoesters displayed high dual binding profile for the D_2 and 5-HT_{1A} receptors, with butyryl ester **3d** as the best possessing the highest potency for both receptors, with K_i values of 55 and 12 nM, respectively.

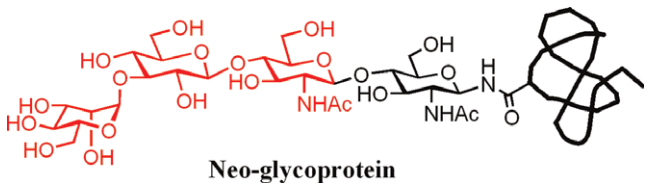


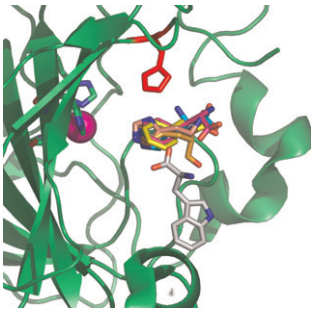
R_1 = CH_3, c-C_4H_7
R_2 = CH_2OH, CH_2OCH_3, CHO, $COOCH_3$, COOH, CH_2Br, CH_2I, CH_2NH_2, NH_2, $N(CH_3)_2$, $NHCOOC_2H_5$, $NHCOCH_3$

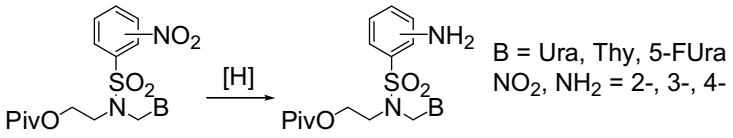


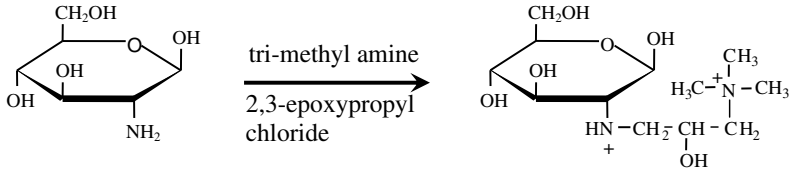


The first synthesis of all-*trans* anandamide is reported together with its effects on FAAH and rabbit platelet aggregation. The all-*trans* PUFA approach can represent an antisense strategy in a chemical biology approach focusing on the *trans* geometry, which is the opposite of the *cis* configuration present in the natural lipids.





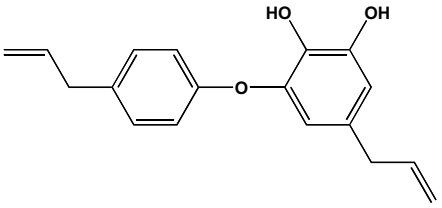




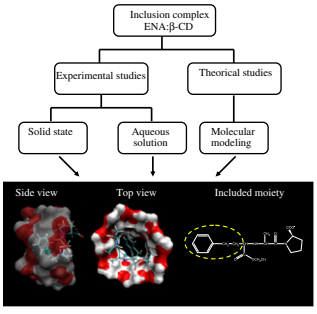
Glucosamine (Glc)

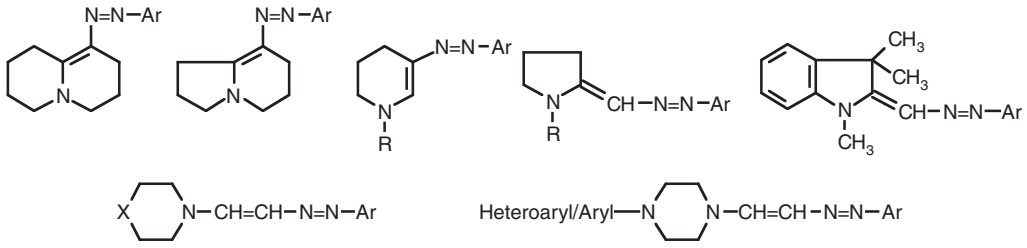
Quaternized amino glucosamine (QAGlc)

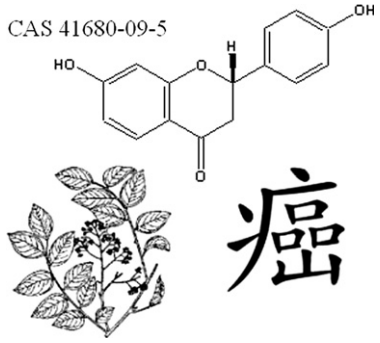
Quaternized amino glucosamine (QAGlc), a newly synthesized cationic glucosamine (Glc) derivative was found to inhibit LPS-stimulated production of IL-1β, IL-6, TNF-α, and PGE_2 in RAW264.7, mouse macrophages via suppression of NF-κB pathway and MAPKs.

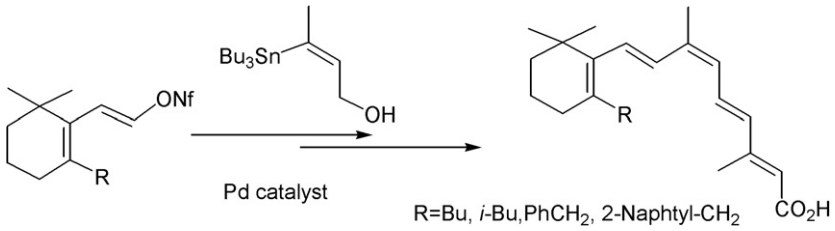


Obovatol inhibited tumor growth and exhibited more potent anti-tumor activity than honokiol in nude mice experiment bearing SW620-incubated tumor.

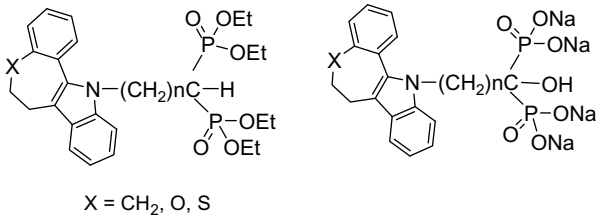


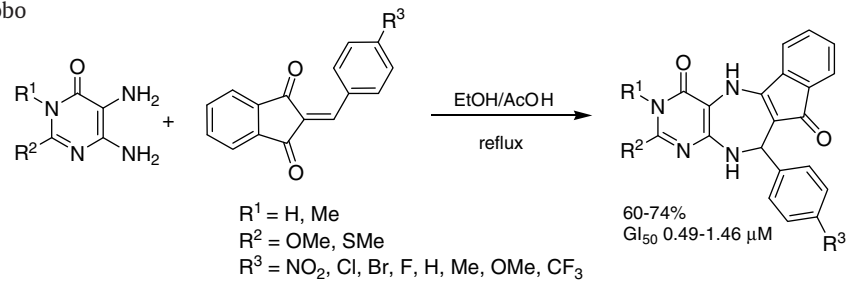




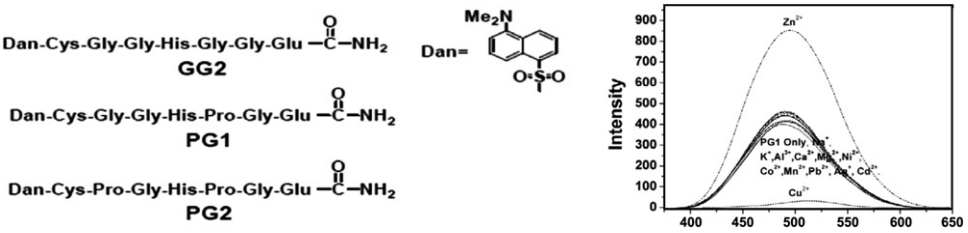


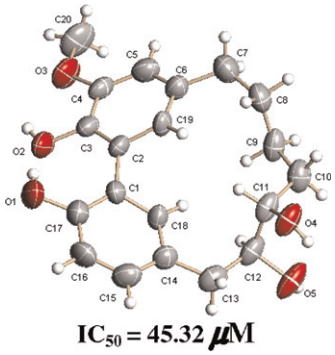
A novel method for a synthesis of 5-substituted retinoic acids analogs was developed by a palladium catalyzed cross-coupling reaction of enol nonaflate with alkenylstannane. The biological activities of these analogs were evaluated.



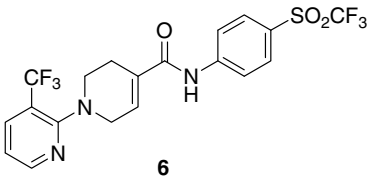


Novel indeno[1,2-*e*]pyrimido[4,5-*b*][1,4]diazepine-5,11-diones were synthesized and screened as antitumorals. Some derivatives exhibited remarkable GI_{50} values ranging from 0.49 to 1.46 μM, in vitro assay.



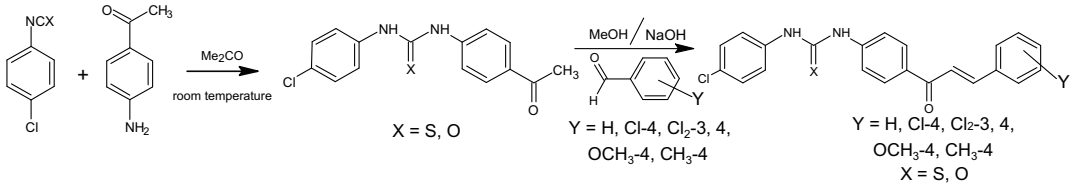


Cyclic diarylheptanoids isolated from *Myrica nana* used for burns were evaluated for their potential on nitric oxide release, with IC_{50} values of 45–63 μM.

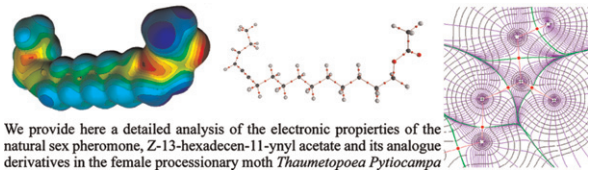


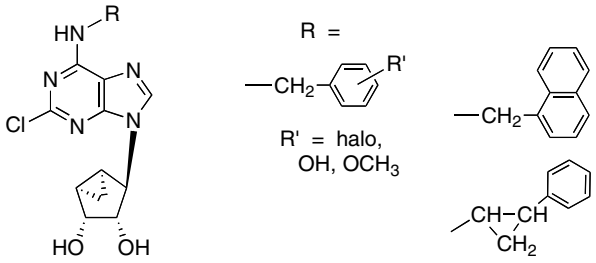
6

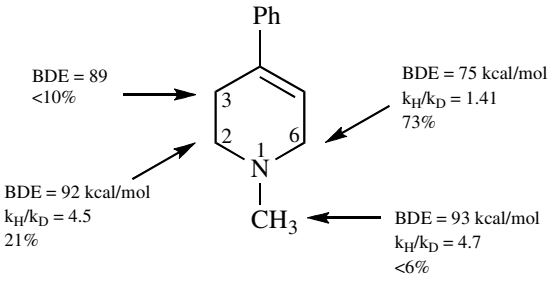
A series of 1,2,3,6-tetrahydropyridyl-4-carboxamides, exemplified by **6**, have been synthesized and evaluated for in vitro TRPV1 antagonist activity, and in vivo analgesic activity in animal pain models.

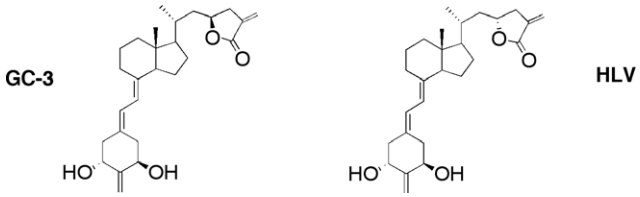


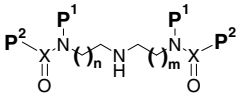
New 1-phenyl-3-{4-[(2*E*)-3-phenylprop-2-enoyl]phenyl}-thiourea and urea derivatives have been synthesized and tested for their anti-nociceptive activity in different models of pain and compared to some lead compounds.



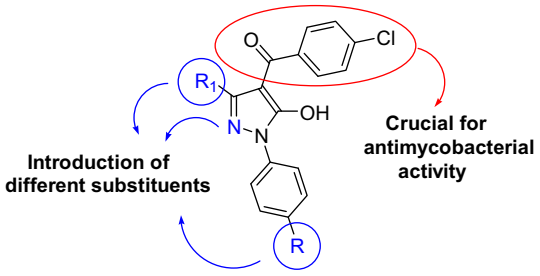


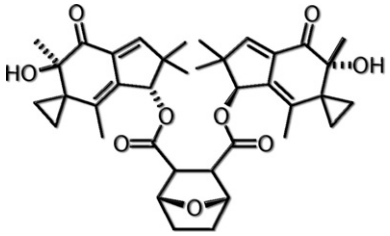




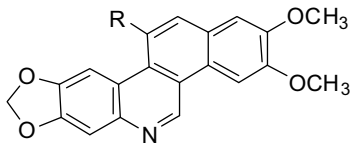


n,m:	1,2	K_i of the Derivative with the Highest Potency [μM]			
X:	C, S=O	HIV-1 Protease	0.9	Renin	5.7
P^1:	^{i}Bu, Bn	Plasmepsin II	2.8	BACE-1	64
P^2:	Ph, *p*-NH_2-Ph, Bn	Plasmepsin IV	7.5	Pepsin	3.9

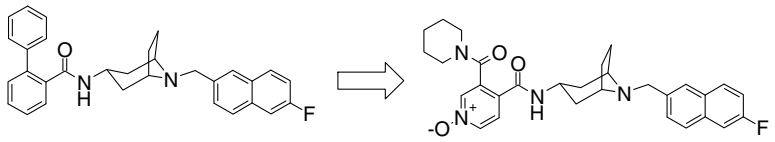




Compared with illudin M, its esters with demethylcantharidinic acid (endothall) and 2,2′-bipyridyl-5,5′-dicarboxylic acid retained the high cytotoxicity while displaying an improved specificity for cells of Panc-1 pancreas and HT-29 colon carcinomas over non-malignant human fibroblasts.

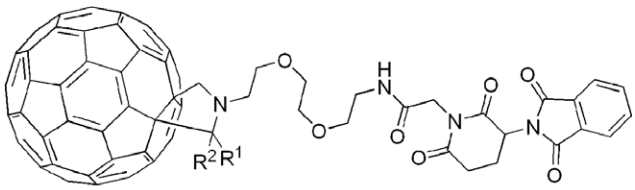


R = formyl, hydroxymethyl, aminoalkyl derivatives, aminocarboxy derivatives



1 **30**

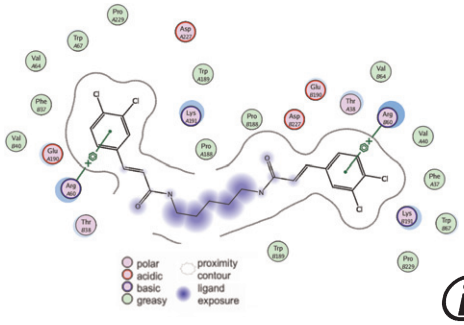
The 6-fluoro-2-naphthylmethyl derivatives were prepared, and their inhibitory activities against CCR3 and CYP2D6 were evaluated.

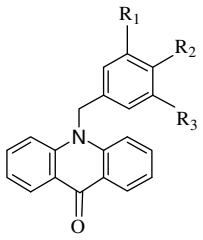


CLT $R^1 = R_2 = CH_2OCH_2OCH_2CH_2OCH_3$

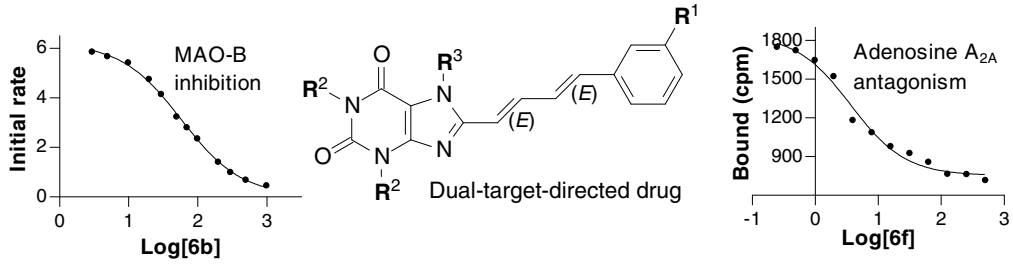
We designed and synthesized new anti-inflammation agent C_{60} fulleropyrrolidine-thalidomide dyad capable of simultaneous inhibition of LPS-induced NO and TNF-α production; we also conducted the biochemical investigations on its anti-inflammatory mechanism.

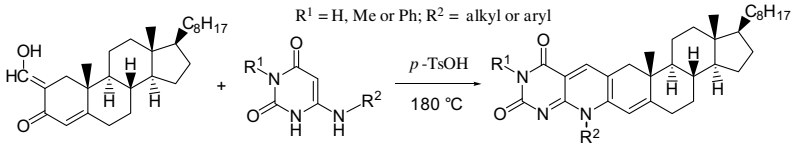
(2*E*,2′*E*)-*N*,*N*′-Pentane-1,5-diylbis[3-(3,4-dichlorophenyl)acrylamide] and its heteroatom-containing analogues are potent inhibitors of human liver glycogen phosphorylase *a* (hLGPa), which binds in the solvent cavity at the hLGPa dimer interface.

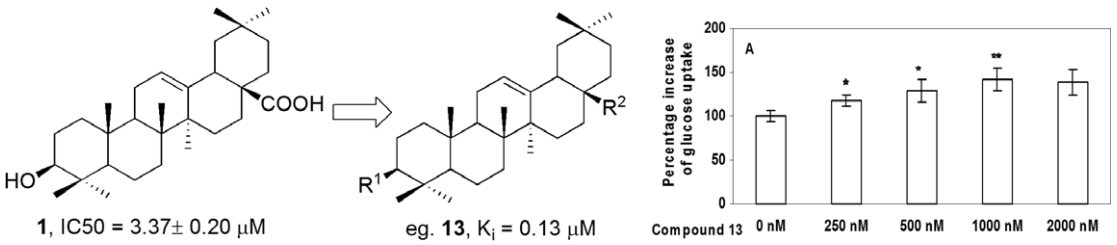


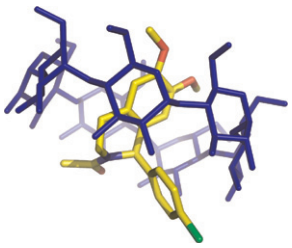


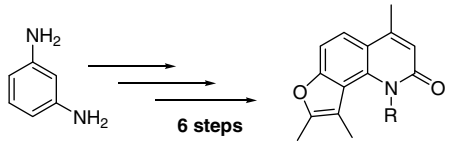
A novel series of 10-benzyl-9(10H)-acridinones were synthesized and evaluated as potent antileukemic activities. Structure–activity relationships are also studied.





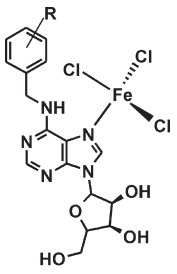






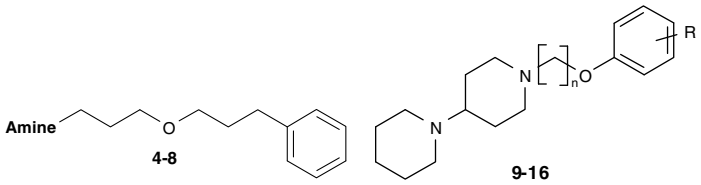
5a-j

5a: R = H **5e:** R = $CH_2CO_2C_2H_5$ **5i:** R = CH_2CO_2H
5b: R = C_2H_5 **5f:** R = $C_2H_4NMe_2$ **5j:** R = $C_2H_4NMe_3^+I^-$
5c: R = CH_2CN **5g:** R = $C_3H_6NMe_2$
5d: R = $CH_2C_6H_5$ **5h:** R = $CH_2CONH(CH_2)_2NMe_2$

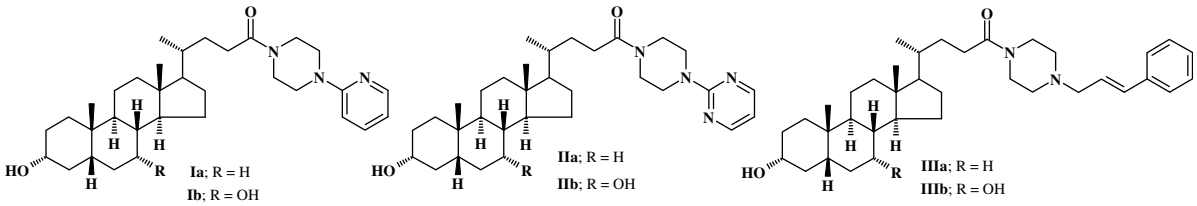


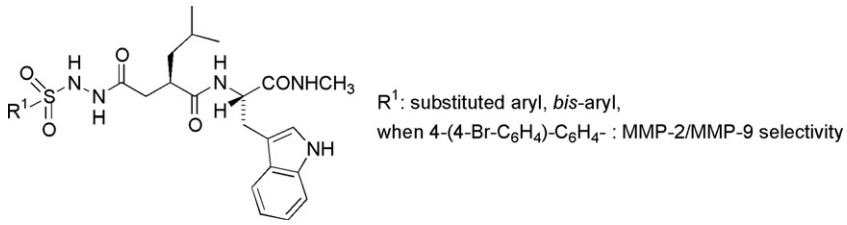
R = F, Cl, CF_3, OCF_3

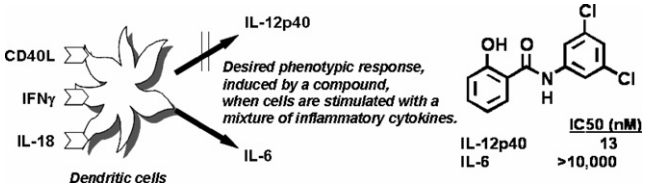
The prepared iron complexes showed notable in vitro cytotoxicity against *HOS*, *K-562* and *MCF-7* human cancer cell lines in some cases. Spectral, Mössbauer and magnetic studies revealed the presence of four different spin and/or valency states of iron cations in the complexes. Geometries of all possible structures were optimized on the DFT level.



New aliphatic (**4**–**8**) and aromatic (**9**–**16**) ethers were prepared and evaluated for binding affinity at the histamine H_3 receptor. The bipiperidine derivative **16** has been found as the most potent compound in vitro (hH_3K_i = 100 nM). Selected compounds tested in vivo did not show potencies up to > 10 mg/kg po in mice.







OTHER CONTENTS

*Corresponding author
ⓘ+ Supplementary data available via ScienceDirect

COVER

An insight into biologically relevant chemical space showing the scaffolds of potential natural-product based inhibitors orbiting their target, the protein structure of protein 11-beta steroid dehydrogenase (PDB code 1xu7). Graphic produced using Pymol (http://www.pymol.org). [M. A. Koch, A. Schuffenhauer, M. Scheck, S. Wetzel, M. Casaulta, A. Odermatt, P. Ertl, H. Waldmann, Charting biologically relevant chemical space: A structural classification of natural products (SCONP), *PNAS* **2005**, *102*, 17272–17277 and S. Wetzel, H. Waldmann, Cheminformatic analysis of natural products and their chemical space, *Chimia* **2007**, *61*(6), 355–360].

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